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"A Metric America: A Decision Whose Time Has Come" – For Real

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U.S. DEPARTMENT OF COMMERCE
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**NATIONAL INSTITUTE OF STANDARDS
AND TECHNOLOGY**
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"A Metric America: A Decision Whose Time Has Come" — For Real

ABSTRACT

The Metric Conversion Act of 1975 (amended in 1988) and a 1991 Presidential Executive Order provide both the rationale and the mandate for a transition to the use of metric units. Federal agencies are developing and implementing metric transition plans, cooperating on mutual concerns, and working with industry and user groups to establish realistic schedules for change.

KEYWORDS

Metric; metrication; metric system; metric transition

Dr. Gary P. Carver is chief of the Metric Program at the National Institute of Standards and Technology in Gaithersburg, MD. Prior to assuming responsibility for the Commerce Department's leading role in federal agency metrication, Dr. Carver was a research physicist in integrated circuit technology and a manager in the semiconductor and manufacturing engineering areas at NIST. His goal is to successfully eliminate the need for his office.

Twenty-one years ago, a National Bureau of Standards¹ report to Congress, *A Metric America: A Decision Whose Time Has Come*, described the United States as an island in a metric world. The report's recommendations contributed to passage of the 1975 Metric Conversion Act. This Act raised the expectation of a 10-year-long voluntary transition to the predominant use of the metric system. However, the Act lacked a clearly stated objective and a timetable for implementation. Possibly as a result, the voluntary metric transition process eventually lost momentum.

In 1988, the growing influence of the metric system of units as an international standard and the increasing competitive importance of metric specifications for products in international commerce caused Congress to respond by including "metric usage" provisions in the Omnibus Trade and Competitiveness Act. The Omnibus Trade Act amendments strengthened the Metric Conversion Act of 1975. The amendments make each federal agency responsible for implementing metric usage in grants, contracts and other business-related activities, to the extent economically feasible, by the end of fiscal year (FY) 1992. However, no statutory provision was made for leadership and coordination of the overall effort.

On July 25, 1991, President Bush acted to fill the federal metric transition leadership void by issuing Executive Order 12770, "Metric Usage in Federal Government Programs." It gives specific direction and new management authority to the Secretary of Commerce to lead and coordinate implementation of the metric-

¹ The National Bureau of Standards is now the National Institute of Standards and Technology (NIST).

usage provisions of the Omnibus Trade Act. This responsibility was delegated to the Under Secretary for Technology, with staff support to be provided by the Office of Metric Programs at the Department of Commerce. The Department of Commerce has long been concerned with the technical aspects of metric usage through NIST's role as the nation's science and engineering laboratory for measurement technology and research on standards. Since 1901, NIST has played a major role in the evolution of a national measurement system policy by providing the measurements, calibrations, data, and quality assurance that are vital to U.S. commerce and industry. NIST also provides technical support to the National Conference on Weights and Measures, an organization of state, county, and city weights and measures enforcement officials and associated business and consumer representatives.

A Rationale and a Mandate

The amended Metric Conversion Act of 1975 and the 1991 Executive Order provide both the rationale and the mandate for a transition to the use of metric units. The rationale is the need to remove a trade impediment to U.S. products, as well as to improve our efficiency and competitive edge, since the modern metric system is now the international standard of measurement. The metric system, for purposes of international trade, is more than just the International System of Units (SI). It includes the product standards and preferred sizes that are accepted by industries and governments throughout the world. "World class products" must be built to metric specifications to be competitive in the international marketplace.

The mandates in the law and Executive Order call for the Federal Government to use the metric system in all of its business-related activities, unless it is not economically feasible or is likely to cause significant inefficiencies or loss of markets to U.S. firms. It is intended that the Federal Government set an example and use its

influence to catalyze a transition to the metric system by U.S. industry. The Federal Government uses measurements in many ways that influence business, including regulation, data collection, publishing, and other services. The Federal Government also is the largest customer of U.S. industry. By offering to buy metric products and services, government can help industry make the transition to the use of metric units of measurement.

In addition, by requesting metric products, the government can demonstrate its commitment to the metric system of measurement.

A Special Year

The metric program is taking an evolutionary path to the statutory goals. The federal agencies are developing and implementing transition plans, cooperating on mutual concerns, and working with industry and user groups to establish realistic schedules for change.

This year, 1992, is a special year in the implementation of the mandate. The law requires that "each federal agency, by a date certain and to the extent economically feasible by the end of FY 1992, use the metric system of measurement in its procurements, grants, and other business-related activities..." The Executive Order requires that agencies provide to the Secretary of Commerce, by June 30, 1992, "an assessment of agency progress and problems, together with recommendations for steps to assure successful implementation of the Metric Conversion Act." The Executive Order also requires in 1992, as part of the annual report to the President by the Secretary of Commerce, "recommendations which the Secretary may have for additional measures, including proposed legislation, needed to achieve the full economic benefits of metric usage."

This year is also special because more significant progress is being made by federal agencies in metric usage than has been made in

any previous year. This will be viewed as a watershed year in the federal metrication process. In 1990 a report on the federal metric program by the Government Accounting Office was critical of the slow pace of progress. Then, in 1991, a Congressional Research Service report documented a low level of compliance with the metric usage mandate by the federal agencies. A report on federal agency plans and the status of their execution that will be issued this year by NIST, however, provides evidence that federal agencies' metric transition progress is gaining great momentum.

Growing Interagency Cooperation

Compliance with the spirit of the law and the Executive Order is significantly improved over previous years. Many agencies have plans in place that describe specific actions already underway and policies that promise complete transition to using the metric system of units. But even more significantly, a growing number of agencies are cooperating to address common issues and to deal with shared problems. This is especially apparent among agencies whose activities focus on procurement, regulatory, and small-business activities.

The interagency Metrication Operating Committee (MOC) is composed of senior-level metric coordinators from the federal agencies. The subcommittees of the MOC address specific topics of interest to several different agencies. These areas include, for example, construction, education, procurement, grants, standards, and federal employee training. Many agencies participate in the activities of the subcommittees and benefit from the combined efforts.

The Construction Subcommittee is one of the most active and successful groups. It has attracted participants from private industry and has published a metric-usage guide for commercial

construction. The subcommittee's work is funded by participating federal agencies, and its members have visited Canada to explore the Canadian experience. Recently, the National Institute of Building Sciences, which served as secretariat for the subcommittee, created a Construction Metrication Council to build on the work of the subcommittee and to enable even greater participation by private industry. MOC agencies have accepted the Construction Subcommittee's goal to design all new federal facilities in metric units by January 1, 1994.

Another example of the growing cooperation among federal agencies to meet the mandate to use the metric system is the leadership of the Government Printing Office and the Internal Revenue Service in exploring a change to metric-sized paper, printed forms, and documents. To examine and discuss the issues, they recently invited other agencies to meet with the staff of the Joint Committee on Printing. They considered the advantages and disadvantages of adopting standard metric sizes, compared to continuing use of the current sizes described in metric units. The approximately 60 representatives appointed an ad hoc committee to develop surveys of industry and the federal agencies, as well as a timetable for reporting the results. The possible impacts on the paper and printing industries will be examined, including transition costs and long-term benefits, document handling, storage, reproduction, information management, and other related activities. The consensus of the participants was that potential problems should be identified and a progressive policy and practical timetable be developed, with industry's cooperation, to make the federal government's transition to the use of metric-sized paper, forms, and documents.

What Needs to be Done?

The progress that federal agencies are making to implement metric usage will require some time to reach the point where metric units are used routinely. For example, agencies that have

implemented a policy to use metric units on all new projects will not make predominant use of the metric system until new metric usage becomes a significantly large part of the agency's activity. Budgetary restraints that limit new project initiatives, safety considerations, transition costs, and external factors will all affect the pace of the change.

For example, in construction, until a large fraction of old, non-metric facilities are replaced with new ones, or are renovated extensively, almost all government facilities, as well as major equipment, will remain non-metric. The use of metric units to describe existing items may be an option, but in some situations this may not be desirable or acceptable.

In addition to needing time for metric policies and plans to be implemented in the federal government, visible top-management commitment to the metric transition and leadership are needed. This also is true for state and local governments and for the business community. Leadership is especially needed in critical areas that involve long lead times, such as in education, including work-force training.

As federal agencies evaluate their progress and identify the problems they may encounter, recommendations for legislation and other actions will be made to the Secretary of Commerce who, in turn, will send them to the President. Clearly, the completion of federal metric efforts will take time. To assure the most beneficial results will take the continuing support of Congress and the cooperation and active participation of industry and state and local governments.

A variety of reasons have been put forward to explain why the metric transition has not made widespread progress in the U.S. in the past. They include lack of national leadership, reluctance to embark on such a change, and the failure of the voluntary effort that began in 1975. The many competing national priorities and

the lack of immediate and visible benefit to a transition clearly were factors. There are political, economic, and social reasons to explain the apparent slow progress and reluctance to make the transition.

None of these factors justify continued inaction. We must continue along the path to joining the global community in the use of metric measurement standards. The efforts of federal agencies are moving us more rapidly in that direction.

The Implications for Business

In his message to the 1992 National Metric Conference "Metrication '92," President Bush associated the metric system of units with success in the international marketplace, greater efficiency, production of goods and services that fit the needs of other nations, enhanced competitive edge, and new opportunities and jobs. A business making the transition from using inch-pound units to using metric units is not only making an investment in the economic well-being of the United States, but is also investing in its own economic survival.

Companies sometimes ask whether they must convert to the metric system of measurement. The simple answer is no--the law does not require conversion and the government cannot force businesses to convert. Competitors (especially overseas competitors) might even prefer that U.S. companies not convert. Finally, some workers may be relieved to hear they do not need to learn a new system, and companies may wish to postpone transition expenses (although the competitive reality is that postponement will be very temporary and subsequent costs may be higher).

A better answer is yes--yes to a conscious and strategic decision to convert. Companies that delay conversion will lose some of the future economic benefits that will ultimately surpass any short-

term costs. Companies should convert if they make or sell any product or service that they or anyone else might want to sell in foreign markets, if they want to be assured of being able to sell to the government in the future, and if they want to begin to enjoy a long-term return on their investment in the transition. In short, companies should actively plan and manage their transition, and not wait for circumstances that will force it. By then, it may be too late for some firms to survive in the increasingly competitive business climate.

Clearly, U.S. companies that do not produce products or services to metric specifications will risk being increasingly uncompetitive in world markets. Japan has identified the U.S. lack of metric usage as a strategic impediment to access of U.S. products to the Japanese home market. In addition, consolidation of the European market product standards will make sales of non-metric products increasingly difficult and uncertain. Most U.S. companies understand that using metric units is essential to future economic success. Their hesitation may be due to uncertainty as to when and how to convert.

Summary

Through their actions, federal agencies are demonstrating an increasing determination to use the metric system of units in business-related activities. The results are not yet very visible to the public, which is not a direct target of current federal transition activities. Industry is the target, and is becoming increasingly aware of and generally welcomes the government's progress.

Industry acceptance of the wisdom of proceeding with the metric transition is due partly to the realization that producing to metric specifications and surviving in tomorrow's economic environment are synonymous. Industry also understands that government agencies are committed to working cooperatively with industry.

In addition, both government and industry recognize the need to make changes gradually and opportunistically to achieve the maximum amount of benefit with the minimum amount of expense and disruption of activity.

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